

IN THE CLAIMS:

Please cancel claims 1-17 of the application without prejudice to or disclaimer of the subject matter therein. In addition, please add new claims 18-38.

18. (New) An interrogator for a radio identification system having a plurality of tags, the plurality of tags including a first subset of tags operating only within a first frequency band, the plurality of tags including a second subset of tags operating only within a second frequency band, the first subset of tags excluding each tag from the second subset of tags, said interrogator comprising:

(a) a first radio frequency module having a transmitter configured to transmit an output signal at a first frequency to the first subset of tags, the first radio frequency module including a receiver configured to receive return signals transmitted by the first subset of tags operating at the first frequency, the first frequency being within the first frequency band, the transmitter of the first radio frequency module being operable over the first frequency band;

(b) a second radio frequency module having a transmitter configured to transmit an output signal at a second frequency to the second subset of tags, the second radio frequency module having a receiver configured to receive return signals transmitted by the second subset of tags operating at the second frequency, the second frequency being within a second frequency band different from the first frequency band, the transmitter of the second radio frequency module being operable over the second frequency band;

(c) a controller module coupled to said first and second radio frequency modules, said controller module including a controller configured to control the transmitter associated with the first frequency and the transmitter associated with the second frequency, the controller module including a decoder configured to decode return signals received from said tags.

19. (New) The interrogator of claim 18, wherein the decoder includes a signal divider configured to divide the return signals into multiple channels and a converter configured to produce pulses based on the return signals.

20. (New) The interrogator of claim 19, wherein the decoder includes a synchronizer configured to synchronize a frequency of the pulses and an extractor module configured to extract information from the pulses according to a protocol associated with the tag transmitting the return signal.

21. (New) The interrogator of claim 20, wherein the decoder further includes a code checker associated with the pulses and selector configured to select the channel without code violations.

22. (New) The interrogator of claim 18, wherein the first radio frequency module and the second radio frequency module are coupled to the controller through a bus.

23. (New) The interrogator of claim 22, the plurality of tags including a third subset of tags operating only within a third frequency band, the third subset of tags excluding each tag from the first subset of tags and each tag from the second subset of tags, the interrogator further comprising:

a third radio frequency module having a transmitter configured to transmit an output signal at the third frequency to the tags, the third radio frequency module having a receiver configured to receive return signals transmitted by tags operating at the third frequency.

24. (New) The interrogator of claim 23, the plurality of tags including a fourth subset of tags, only within a fourth frequency and, the fourth frequency band excluding each tag from the first subset of tags and each tag from the second subset of tags further including a fourth radio frequency module having a transmitter configured to transmit an output signal at the fourth frequency to the tags, and including a receiver configured to receive return signals transmitted by tags operating at the fourth frequency.

25. (New) The interrogator of claim 24, wherein the first frequency falls in a range 100 to 200 KHz.

26. (New) The interrogator of claim 25, wherein the second frequency is substantially 13.56 MHz.
27. (New) The interrogator of claim 26, wherein the third frequency falls in a range 458 to 917 MHz.
28. (New) The interrogator of claim 27, wherein the fourth frequency is substantially 2.45 GHz.
29. (New) The interrogator of claim 19, wherein each transmitter includes an antenna configured to transmit its output signal in response to a control signal from the controller.
30. (New) The interrogator of claim 29, wherein the divider includes a circulator having an input port coupled to the antenna and an output port for each of the channels.
31. (New) The interrogator of claim 30, wherein the divider includes a mixer and an amplifier for each of the channels, each of the mixers having an input coupled to the respective output port of the circulator and an output coupled to the respective amplifier for the channel, the output of each amplifier is coupled to a converter configured to convert the return signals into pulses for the channel.
32. (New) The interrogator of claim 31, wherein the converter includes a pulse shaping circuit for each of the channels.
33. (New) The interrogator of claim 32, wherein the pulse shaping circuit includes an isolated output port coupled to a bus connected to the controller.
34. (New) A radio identification interrogator, comprising:
 - a first radio frequency (RF) module being associated with its own frequency band and having a transmitter and a receiver, the transmitter of the first RF module being configured to

send an output signal having a carrier frequency within the frequency band associated with the first RF module, the receiver of the first RF module configured to receive a return signal based on the output signal associated with the transmitter of the first RF module and being associated with a tag from a first plurality of tags; and

a second RF module being associated with its own frequency band different from the frequency band associated with the first radio frequency module, the second RF module having a transmitter and a receiver, the transmitter of the second RF module being configured to send an output signal having a carrier frequency within the frequency band associated with second RF module, the receiver of the second RF module configured to receive a return signal based on the output signal associated with the transmitter of the second RF module and being associated with a tag from a second plurality of tags, the first plurality tags excluding each tag from the second plurality of tags.

35. (New) The radio identification interrogator of claim 34, further comprising:

a controller coupled to the transmitter of the first RF module and the transmitter of the second RF module; and

a decoder coupled to the receiver of the first RF module and the receiver of the second RF module.

36. (New) The radio identification interrogator of claim 34, wherein:

the first RF module is configured to receive a return signal modulated according to a first protocol from a plurality of protocols; and

the second RF module is configured to receive a return signal modulated according to a second protocol from a plurality of protocols.

37. (New) The radio identification interrogator of claim 36, further comprising:

a decoder coupled to the receiver of the first RF module and the receiver of the second RF module, the decoder having a first output channel associated with the first protocol and the second output channel associated with the second protocol.

38. (New) A method, comprising:

sending a signal having a carrier frequency within a first frequency band;

sending a signal having a carrier frequency within a second frequency band different from the first frequency band;

receiving, from a first tag, a return signal based on the signal having the carrier frequency within the first frequency band, the return signal associated with the first frequency band being associated with the first tag; and

receiving, from a second tag, a return signal based on the signal having the carrier frequency within the second frequency band, the return signal associated with the second frequency band being associated with the second tag and not the first tag.